

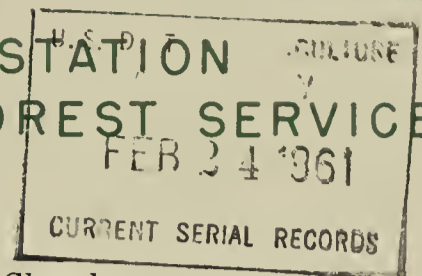
Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

1.9
F7625T
Cop. 2

LAKE STATES FOREST EXPERIMENT STATION
U.S. DEPARTMENT OF AGRICULTURE · · FOREST SERVICE

No. 596



Grasshoppers--A Major Defoliator of Trees and Shrubs in the Northern Great Plains

Several species of grasshoppers are found in the Northern Great Plains. Fundamentally, the species in the eastern or crop-producing area (to which this discussion is confined) differ from those in the western part where the cover is principally range grass.



Figure 1.--Heavy grasshopper defoliation of a Siberian peashrub in a shelterbelt adjacent to a freshly harvested field.

The predominant species in the eastern part of North Dakota and South Dakota are Melanoplus bivittatus, M. bilaturatus, M. packardii, M. femur-rubrum, and M. differentialis. Their normal food hosts are many and include alfalfa, small grains, soybeans, flax, and corn. Grasshoppers have a long history as destructive agents in this region, and extensive survey and control programs have been carried on to prevent crop loss.

Trees and shrubs, as well as crops, have been extensively damaged in the Plains since the shelterbelt plantings of the 1930's, especially in dry and drought years. Since grasshoppers are general feeders, any or all species of trees and shrubs in the shelterbelts may be attacked. Even conifers like ponderosa pine are not immune.^{1/}

In years of heavy grasshopper populations, entire belts may be completely denuded. One complete defoliation of the deciduous trees may not always kill the trees, but when the twigs, buds, and bark are also chewed off, mortality occurs and a belt can be wiped out. Of course, one complete defoliation of a conifer is sufficient to kill it.

In 1960, which was a reasonably wet year by Plains standards, grasshopper populations were relatively low and consequently damage to shelterbelts was light. The shrubs planted in the outer rows of belts, particularly the Siberian peashrub (Caragana arborescens), were most damaged (fig. 1).

^{1/} George, E. J. Thirty-one-year results in growing shelterbelts on the Northern Great Plains. U.S. Dept. Agr. Cir. 924, 57 pp., illus. 1953.

Complete rows of Caragana were seldom severely defoliated, and only an occasional plant was lightly debarked. Slight grasshopper feeding also occurred on boxelder, American elm, Russian olive, plum, willow, honeysuckle, and hackberry in various belts, as well as on several species of weeds between the rows of trees.

Shelterbelts adjacent to cornfields always had lighter populations than those next to grainfields. Once the corn and grain had been harvested, however, the grasshoppers in those fields migrated to and concentrated on the trees and shrubs.

To prevent damage to a shelterbelt, a farm owner should examine his crops just prior to harvest to determine the grasshopper population. This is especially important in drought years when populations are apt to be high. Control, if necessary, is most feasible while the insects are still feeding in the fields. One method of preventing damage would be to leave a narrow strip of the crop adjacent to the shelterbelt unharvested. Then, poison bait or an insecticide could be applied on the strip to kill the migrating grasshoppers before they reach the trees.

January 1961

LOUIS F. WILSON, Entomologist